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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,249

09/15/2006

Tetsuo Yazawa

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EXAMINER

BERNS, DANIEL J

ART UNIT

PAPER NUMBER

1734

NOTIFICATION DATE

DELIVERY MODE

01/21/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/593,249	Applicant(s) YAZAWA ET AL.	
	Examiner DANIEL BERNS	Art Unit 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Elias et al.'s 2000 article ("Elias"). Regarding claims 1-4, Elias discloses a method comprising pulverizing an artificial quartz crystal into a fine dust (i.e., having particle diameters of <2.0 mm) and activating the particles by immersing the same in HF_(aq), thereby inherently forming a photocatalyst as claimed. See Elias at p. 411, bottom of col. 1 to middle of col. 2.; Tables 1 and 3 (M-HF and Q13 values); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) (holding that where claimed and prior art products are produced by identical or substantially similar methods, a prima facie case of anticipation or obviousness has been established); MPEP 2112.01.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. In considering the obviousness rejections below, the applicant should note that the person having ordinary skill in the art at the time of the invention has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in the application reasonably reflect this level of skill.

8. Claims 1, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elias in view of Fujii, Pre-grant Pub. No. US 2002/0170815 (published 11/21/02). Regarding claim 1, Elias' teachings are as above. Regarding claim 5, the difference between said claim and Elias is that the latter fails to explicitly teach the detoxification of an environmental pollutant by contacting a gas containing said pollutant with its photocatalyst under photo-activation conditions, wherein its photocatalyst is in an oxidizing condition. These limitations, however, are taught by Fujii.

Fujii teaches the oxidative decomposition of gaseous contaminants from a mixed gas (such as air) by contacting the mixed gas with a photocatalyst, which is necessarily in an

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oxidizing condition, and under photo-activation conditions. See Fujii at, e.g., par. 34, 38, 39, 93, 95, 415 and 416; clms. 1 and 7. While Fujii does not explicitly employ quartz photocatalysts such as Elias' in its methodology, Fujii nevertheless does not state that its detoxification method is limited to certain photocatalysts. In the absence of such a limiting teaching, and given the known effectiveness of photocatalysts in eliminating such contaminants from mixed gases as taught by Fujii, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a photocatalyst such as Elias' in a detoxification context such as Fujii's, as doing so would involve a reasonable expectation of success. See MPEP 2143 (at least rationales (B) and (E)); *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395-97 (U.S. 2007)¹.

Regarding claim 6, Fujii teaches the oxidative decomposition of gaseous contaminants such as NO_x, and states that the presence of water in the mixed gas advantageously aids in activating the photocatalyst. See *id.* at par. 34, 36, and 416; clms. 4, 5 and 9.

Response to Arguments

9. Applicant's arguments with respect to rejections based upon JP 2004-290747 and JP 2004-290748 have been considered and are found persuasive in view of applicant's perfecting its foreign priority claim. Said rejections are withdrawn.

Conclusion

10. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this

¹ See also *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 335, 65 USPQ 297, 301 (1945) ("Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle."); MPEP 2144.07.

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final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL BERNIS whose telephone number is (571)270-5839. The examiner can normally be reached on Monday thru Thursday, 9AM-6PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emily Le can be reached at (571)272-0903. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./ January 6, 2011
Examiner, Art Unit 1734

/Emily M Le/
Supervisory Patent Examiner, Art Unit 1734